



National Transportation Safety Board Aviation Incident Final Report

Location:	Atlanta, GA	Incident Number:	ATL07IA078
Date & Time:	04/22/2007, 0624 EDT	Registration:	N904FR
Aircraft:	Airbus Industrie A319-111	Aircraft Damage:	Minor
Defining Event:		Injuries:	129 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The lower right engine cowlings separated during the takeoff initial climb. The pilot-in-command (PIC) stated the flight deck crew arrived at the airplane at the required show time. The gate agent informed the flight deck crew that a mechanic was working on the brakes. The PIC and first officer (FO) went down to the airplane, did not see anyone, and the logbook was not on the flight deck. The FO departed the flight deck, completed the walk around inspection, and observed nothing unusual. A short time later the mechanic brought the logbook to the flight deck and explained to the PIC that he had worked on the No.1 brake and placed the temperature sensor on the minimum equipment list. The lower right engine cowlings separated on initial climbout at 200 feet resulting in a loss of the yellow hydraulic pressure system. The flight crew leveled the airplane off at 3,000 feet, declared an emergency, the flight was cleared by the air traffic controller for an approach to runway 9 left, and landed without further incident. Examination of the airplane's right engine lower cowlings by an FAA inspector after the incident revealed all three latches were in the unlocked position. The latch fitting on the aft position was missing and the bolt that secures it was broken. The two forward fittings were in good condition and showed no signs of stress. "The A319 STANDARD OPERATING PROCEDURES EXTERIOR INSPECTION states in GENERAL, "The exterior inspection ensures that the overall condition of the aircraft and its visible components and equipment are safe for the flight. Complete inspection is normally performed by maintenance personnel or in the absence of maintenance personnel by a flight crewmember before each originating flight. Items marked by asterisks (*) must be performed by a flight crewmember before each flight." Item 7, ENG 2 LH SIDE, and item 19, ENG 2 RH SIDE both have an asterisk next to Fan cowl doors, CLOSED/LATCHED." Review of FRONTIER AIRCRAFT FLIGHT LOG for Aircraft Number 904 revealed the Integrated Drive Generator (IDG) required servicing on April 22, 2007. The mechanic endorsed the FRONTIER AIRCRAFT MAINTENANCE NON-ROUTINE SUPPLEMENT SHEET on April 22, 2007, "Serviced #2 IDG IAW AMM 24-21-00-03-02." The FRONTIER MAINTENANCE LINE CHECK LIST, HEAVY SERVICE, CARD No. HS 2010-1, dated February 26, 2007 states on page 7 item 15.1, "Cowlings: panels, air outlets, security of latches." The mechanic indicated with his initials and social security number that this task had been complied with on April 22, 2007. The mechanic entered his initials and social security number on page 12 item 20.1 stating, "Endorse corrective actions in technical log book and sign

against each corrected or carried forward item."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The mechanics failure to follow procedures and directives in securing the lower engine cowling after maintenance, and the failure of the first officer to follow the checklist to ensure the engine cowling was secured during the walk around inspection resulting in the separation of the right lower engine cowling during initial take off climb.

Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: CLIMB

Findings

1. COOLING SYSTEM,COWLING - NOT SECURED
2. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - COMPANY MAINTENANCE PERSONNEL
3. (C) CHECKLIST - NOT FOLLOWED - COPILOT/SECOND PILOT
4. COOLING SYSTEM,COWLING - SEPARATION

Factual Information

On April 22, 2007, at 0624 eastern daylight time, an Airbus A319-111, N904FR, Frontier Flight 851, operating as a 14 CFR Part 121 scheduled domestic passenger flight, registered to RBS Aerospace Limited, operated by Frontier Airlines, Inc, experienced a loss of the right lower engine cowling on initial climb out at 200 feet, and the loss of the yellow hydraulic pressure system. The flight crew leveled the airplane off at 3,000 feet and declared an emergency. The flight was cleared for an approach to runway 9 left and landed without further incident at the William B. Hartsfield Atlanta International Airport, Atlanta, Georgia at 0642. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed. The airplane received minor damage. The airline transport rated pilot-in-command (PIC), first officer (FO), three flight attendants, and one hundred twenty four passengers reported no injuries. The flight was originating from the William B. Hartsfield International Airport, Atlanta, Georgia, on April 22, 2007; at 0624. The planned destination airport was Denver International Airport, Denver, Colorado.

The PIC stated the flight deck crew arrived at the airplane at the required show time. The gate agent informed them that a mechanic was working on the brakes. The PIC and FO went down to the airplane and did not see anyone and the logbook was not on the flight deck. The FO departed the flight deck, completed the walk around inspection, and observed nothing unusual. A short time later the mechanic brought the logbook to the flight deck and explained to the PIC that he had worked on the No.1 brake and placed the temperature sensor on the minimum equipment list.

Examination of the airplane right engine lower engine cowling by an FAA inspector after the incident revealed all three latches were in the unlocked position. The latch fitting on the aft position was missing and the bolt that secures it was broken. The two forward fittings were in good condition and showed no signs of stress.

Review of Frontier Flight Operations Manual-Volume II, Exterior Inspection, General, states, "The exterior inspection is normally performed by the first officer unless briefed otherwise by the captain. This check ensures that the overall condition of the aircraft and its visible components and equipment are safe for flight. A complete exterior inspection must be performed by a flight crewmember before each originating flight." The Exterior Walk Around Inspection states in item 7, "ENG LH SIDE....-* Fan cowl doors, CLOSED/LATCHED. The checklist further states in item 19, "ENG RH SIDE....-* Fan cowl doors, CLOSED/LATCHED." The A319 STANDARD OPERATING PROCEDURES EXTERIOR INSPECTION states in GENERAL, "The exterior inspection ensures that the overall condition of the aircraft and its visible components and equipment are safe for the flight. Complete inspection is normally performed by maintenance personnel or in the absence of maintenance personnel by a flight crewmember before each originating flight. Items marked by asterisks (*) must be performed by a flight crewmember before each flight." Item 7, ENG 2 LH SIDE, and item 19, ENG 2 RH SIDE both have an asterisk next to Fan cowl doors, CLOSED/LATCHED."

Review of FRONTIER AIRCRAFT FLIGHT LOG for Aircraft Number 904 revealed the Integrated Drive Generator (IDG) required servicing on April 22, 2007. The mechanic signed off on the FRONTIER AIRCRAFT MAINTENANCE NON-ROUTINE SUPPLEMENT SHEET on April 22, 2007, "Serviced #2 IDG IAW AMM 24-21-00-03-02." The FRONTIER MAINTENANCE LINE CHECK LIST, HEAVY SERVICE, CARD No. HS 2010-1, dated February

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Review of the airplane log books revealed the airplane was equipped with the modifications outlined in AD2003-18-6 and amendment 39-13297, which mandates the installation of a hold open device for the cowl doors as well as a modification of the latch handles to ensure that the unfastened latch handle will hang down.

Airbus previously issued a Operator's Telex to "A319/A320/A421 V2500 operators." The telex recommended that, in addition to mandatory compliance with AD 2003-18-06, operator's consider the following: "... strictly adhere to AMM Task 71-13-00 for proper latching and closing of fan cowl doors after each maintenance action requiring cowl opening.... It is essential that a flight crew member visually inspects the fan cowl doors prior to each flight to ensure that they are closed and latched."

The pilot-in-command, first officer, and mechanic were tested for ethanol, basic, acidic, and neutral drugs. All results were normal.

Pilot Information

Certificate:	Airline Transport	Age:	43, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 1 Without Waivers/Limitations	Last FAA Medical Exam:	11/01/2006
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	12750 hours (Total, all aircraft), 2400 hours (Total, this make and model), 11650 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	36, Male
Airplane Rating(s):		Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):		Second Pilot Present:	Yes
Instructor Rating(s):		Toxicology Performed:	
Medical Certification:		Last FAA Medical Exam:	
Occupational Pilot:		Last Flight Review or Equivalent:	04/01/2007
Flight Time:	7469 hours (Total, all aircraft), 2450 hours (Total, this make and model), 2256 hours (Pilot In Command, all aircraft), 157 hours (Last 90 days, all aircraft), 95 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Airbus Industrie	Registration:	N904FR
Model/Series:	A319-111	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	1579
Landing Gear Type:	Retractable - Tricycle	Seats:	132
Date/Type of Last Inspection:	04/01/2007, Continuous Airworthiness	Certified Max Gross Wt.:	155322 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:	19419 Hours at time of accident	Engine Manufacturer:	General Electric
ELT:	Installed, not activated	Engine Model/Series:	CFM56-5B85P
Registered Owner:	RBS Aerospace Limited	Rated Power:	22000 lbs
Operator:	Frontier Airlines, Inc	Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	F3LA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KATL, 1026 ft msl	Distance from Accident Site:	
Observation Time:	0552	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.21 inches Hg	Temperature/Dew Point:	12° C / 7° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Atlanta, GA (KATL)	Type of Flight Plan Filed:	IFR
Destination:	Denver, CO (KDEN)	Type of Clearance:	IFR
Departure Time:	0624 EDT	Type of Airspace:	

Airport Information

Airport:	William B. Hartsfield Int (KATL)	Runway Surface Type:	Concrete
Airport Elevation:	1026 ft	Runway Surface Condition:	Dry
Runway Used:	09L	IFR Approach:	ILS
Runway Length/Width:	11889 ft / 150 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	Minor
Passenger Injuries:	124 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	129 None	Latitude, Longitude:	33.645000, -84.430556

Administrative Information

Investigator In Charge (IIC):	Carrol A Smith	Report Date:	06/27/2007
Additional Participating Persons:	Richard Curtis; College Park FSDO-11; College Park, GA		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).